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ORCHITIS IN MUMPS.

By Conrad Wesselhoeft, M.D., Boston,

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[From the Evans Memorial Hospital, Boston.]

Orchitis is the most common complication of mumps. To many practitioners it seems the only thing to be afraid of in the course of this contagious disease, the fear apparently being that testicular atrophy will follow, and that this will result in sexual impotency. Yet although this form of orchitis may give rise to considerable pain, and may cause inconvenience to the patient, it does not follow that the condition in itself or the atrophy that may result is generally so serious to the individual as is commonly supposed to be the case. A study of the subject brings to light much that is of interest and of practical value, and tends to allay the fears based upon an incomplete understanding of the nature of the condition, its end results, and the possibilities in the way of treatment.

Orchitis was described as a complication of parotitis in the Hippocratic writings. In 1752 Pratolongo mentioned orchitis as a frequent complication of the parotitis then epidemic at Gênes, and in 1761 Hamilton, in his classical description of mumps, raging at the time in Scotland, brought out the frequency of testicular involvement with subsequent atrophy of the gland.[1] By the beginning of the nineteenth century the medical profession of Europe, Great Britain, and America were generally aware of the contagiousness of mumps and the frequency of orchitis as a complication. During the last century a considerable amount of literature accumulated on the subject, which culminated in an excellent review of the subject by Laveran in 1879.[2] This work aroused great interest among the medical officers of the French Army, and to their efforts we owe to a large extent our present knowledge of the disease itself and its complications. The subject of orchitis in this connection was brought up to date by Comby[1] in 1893 and again by Schottmüller[3] in 1904. Since then although there have been résumés in textbooks and an occasional essay or note on some particular phase of the subject, no attempt has apparently been made to codify our information.

THE RELATION OF THE PAROTID GLAND TO THE GENITAL ORGANS.

The predilection of the testicle to the virus of mumps is a matter of considerable interest. The relation of the testicle to the parotid gland has attracted the attention of several authors. In certain vertebrates we find a definite physiological connection between the sex organs and the salivary and facial glands. Owen[*] states that during the breeding season, "a musky odor is emitted by the submaxillary glands of the crocodile, and pervades their haunts." In the swiftlets the salivary glands become peculiarly active in the breeding season, and secrete a substance akin to mucin, with which they form their snow-white nests—the edible bird's nests of the Chinese epicures.[†] Darwin[‡] informs us that during the rutting season "the glands on the sides of the face of the male elephant enlarge and emit a secretion having a strong musky odor." It is also said that in camels the salivary glands are enlarged in the breeding season.[4] The Indian antelope possesses odoriferous glands about the face which are usually larger in the male than in the female, "and their development is checked by castration."[*]

Thus some remote connection between the salivary glands and the generative organs in man is suggested by the Darwinian theory of evolution and clinical evidence gives us abundant examples of the interrelationship of these two parts of the human body. After various injuries to the genital organs, such as catheterization, prostatectomy, insertion of a pessary, pelvic operation, delivery, abortion, etc., and even in the course of menstrual disorders and during the menopause, we sometimes have an acute simple parotitis.

Several instances have been recorded of repeated and simultaneous swelling of the parotid gland with each menstruation.[†] In certain cases the swelling of the parotid seems "to have replaced the menstrual flow."[‡] Enlargement of the parotid has been observed to accompany each successive pregnancy.[§] Finally, the parotid has been known to enlarge during or after the menopause.[§]

Paget[*] cites one case where salivation took place at each menstruation, and another where there was a definite diminution of parotid secretion with each period. Baisch[†] considers the disturbances of the sense of taste which occur during pregnancy as due to a reflex action on the gustatory nerve, referred from the genital organs. He holds that the salivation in pregnancy may be the result of a reflex through the nervous system acting on abnormally sensitive nerves—regardless of the vomiting and its natural stimulation of salivation. His thesis, though not convincing, offers much experimental and clinical evidence pertaining to the relation of the parotid gland and the sexual organs.

Postoperative parotitis has been the subject of considerable discussion and research. Stephen Paget,[*] in 1887, collected 101 cases of this condition, of which but 15 showed "septic symptoms," "septicaemia," or "pyaemia." He discredited the prevailing idea that the parotitis was always the result of pyaemia or oral sepsis, and without venturing on any explanation satisfactory to himself, suggested that the condition might in some way be related to the connection which exists between the parotid gland and the genital organs via the sympathetic nervous system. Bachmann[†] in 1907 argued that postoperative parotitis is always due to oral sepsis, and that the relatively open position of the mouth of Stenson's duct in comparison with that of Wharton's and Bartholini's ducts, is the predisposing factor. Morel[6] in 1908 gave out an extensive monograph on this subject. Out of 84 cases, three followed operations on the urinary tract, six

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Owen, R.: Anatomy of Vertebrates (London, 1866) Vol. i, p. 615.

Geddes and Thomson: The Evolution of Sex (New York, 1890), p. 231.

Darwin, C.: The Descent of Man (New York, 1872), Vol. ii, pp. 27, 266, 267.

Owen, R.: Anatomy of Vertebrates (London, 1868), Vol. iii, p. 632.

The idea is held by some that the bite of venomous snakes is more deadly during the breeding season. Were this true, it would be an interesting point in the above discussion, since "the poison gland of the snake is a modified form of the glandula labialis superior, and in all probability is equivalent to, if not identical with, the parotid of the mammalia." (Noguchi, H.: Snake Venoms, Pub. 111, Carnegie Institute, Wash., 1909, xvii, p. 47.) Those snakes which hibernate are particularly active in all respects when the warm weather brings them again out into the open, and it is possible that with their increased metabolism the secretion of venom may be augmented. This is, however, merely coincident and not necessarily dependent on the increased activity of the sexual function. In the tropics no such idea seems to prevail. This is not surprising when we consider that a six-foot Cape cobra injects 15 to 20 times a lethal dose of his venom with one good bite. (Fitzsimons, F. W.: The Snakes of South Africa, London, 1912, p. 347). The idea that snakes are more deadly during the breeding season cannot be ascertained from Noguchi or Fitzsimons in the books referred to above, nor from Calmette. (Calmette, A: Venoms, trans by Austen, E., N. Y., 1908), or Mitchell (Mitchell, S. W.: Treatment of Rattle-Snake Bites, Philadelphia, 1861).

Paget[5]: *op. cit.*, p. 615; Morel[6]: *op. cit.*, p. 55; Dalché, P.: Reaction parotidienne à la menopause. La Gynecologie, August, 1903, p. 309.

Paget[5] *loc. cit.*

Paget[5] *loc. cit.*; Dalché *loc. cit.*

Paget[5] *loc. cit.*; Dalché: *loc. cit.*

Paget[5]: *loc. cit.*

Baisch, K.: Hyperemesis und Ptyalismus in der Graviditaet. Monatsch. f. Geburtsh., July, 1904, p. 47.

Paget[5]: *op. cit.*, p. 614.

Bachmann, F.: Zur Casuistik der postoperativen Parotitis. Kiel, 1907, pp. 15, 16.

on the digestive tract, and 76 on the genital tract. The incidence of parotitis was the same in both sexes.*

Postoperative parotitis may follow any operation, just as suppurative parotitis may occur during any serious illness where oral sepsis is present. But aside from cases originating from pyaemia and oral sepsis, there appears to be a particularly high incidence of parotitis after injury to the genital tract, and especially after injuries to the ovaries and testicles; furthermore, this parotitis in the majority of cases is of the simple type, and clears up of itself.† When the orchitis is suppurative, the subsequent parotitis is also apt to be suppurative, and *vice versa*.

Reasoning from analogy on the theory propounded by Abderhalden regarding the chemotaxis of groups of tissue cells in various parts of the body for certain poisons or foreign substances, and the theory advanced by Rosenow regarding the different selective affinities of certain strains of a given organism for certain tissues of the body, one can conceive of the pathological relationship between the orchitis and the praotitis in mumps. Such a speculative hypothesis—based on a combination of these two theories, on our meagre knowledge of the virus of mumps, and on clinical observations—offers at least a conception, vague though it may appear, of this phenomenon which has interested the medical profession for so many years.*

In order that such an hypothesis may not appear too arbitrary, it is well to mention some of the ideas hitherto advanced concerning the cause of testicular involvement during mumps. Schneider† considered masturbation as a causative factor in the development of orchitis. Dukes[8] asserted in 1899 that if patients were kept in bed eight days, orchitis would not develop, implying that the metastasis was induced by bodily activity during the acute stage of the parotitis; but he afterwards retracted this statement, as we shall see later. It was held by some that the contagion was carried from the mouth to the urethra by hand, and thus to the testicle. This notion has been disproved by the clinical researches of Lewis, who found that careful sterilization of the hands and protection of the glans penis did not reduce the incidence of complication."[9]

INVOLVEMENT OF OTHER GLANDS.

That the metastasis takes place through the circulation is evidenced by the fact that the virus of mumps attacks the ovary as well as the testicle. Oöphoritis is far more common in mumps than is generally supposed, but it is too commonly overlooked.[10] Josephson[11] has recently given a most complete monograph on this subject. Bartholini's glands[1] may become swollen in the course of mumps, and mastitis has frequently been reported as a complication in both males[12] and females.[13] Adenitis, dachryocystitis, pancreatitis, and enlargement of the thyroid and thymus* are mentioned among the complications of this disease, just as any of the salivary glands may become involved in mumps, so that the testicle is not the only portion of the male genital tract which suffers. Among 115 cases of mumps at Châlons recently reported by Ramond and Goubert[46] there were five cases of orchitis, 20 of epididymitis, 40 of funiculitis, and 23 of prostatitis and vesiculitis. Barthez and Sanné reported five cases of "urethritis,"[1] and other observers have noted a urethral discharge lasting from one to three days with negative bacteriological findings, and in which gonorrhea could be practically ruled out. The question arises whether this urethral discharge is the result of a urethritis or comes from an involvement further up.

The prostate unquestionably may become involved, with pain and definite enlargement on rectal examination, and with a urethral discharge. This may be a much more serious complication than the orchitis, so far as the late effects are concerned. Prostatic atrophy is far more apt than orchitis to bring about sterility, because insufficient prostatic fluid during the emission greatly decreases the chances of fertili-

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Morel[6]: *op. cit.*, p. 108.

In Paget's series "in 93 cases out of 101, it was an isolated lesion, unaccompanied by any other inflammation like itself." (*loc. cit.*)

For a further consideration of the etiology of post-operative parotitis see Jacob[53] *op. cit.*, p. 552; Taylor, F. T.: The Connection between the Parotid Glands and the Sexual Organs, Lancet, London, Jan. 30, 1886, 1, p. 130; Schottmüller[3], *op. cit.*, p. 54; Deaver, J. B.: Post-operative Parotitis, Ann. of Surg., Philadelphia, 69, Feb. 19, 1919, p. 128.

Paget's tentative theory of the relation of the parotid gland to the genital organs through the sympathetic nervous system offers an explanation of the physiological phenomena in this connection, but it does not suffice as an explanation of the pathological relationship in the course of an infection nor is it supported by the animal experimentations of Morel.

Quoted by Pliqué[7].

"Castration or spaying causes an enlargement of the thymus gland, even in the mature animal in which this gland has undergone considerable involution," Howell, W. H., Text-book of Physiology, 6th edition, Philadelphia, 1915, p. 886. The functional relationship between the sexual organs and the ductless glands must be borne in mind in a consideration of the complications of mumps. See Marshall, F. H.: The Physiology of Reproduction, London, 1910.

zation of the ova, whereas a sufficient amount may carry even a diminished supply of spermatozoa to a successful fecundation. The incidence of prostatic involvement and subsequent atrophy due to mumps cannot be determined from the literature, but Robinson[13] records seven cases of partial or "complete" atrophy of the prostate "in which an antecedent parotitis seemed to be the sole etiological factor." As a cause of sterility in the male this neglected complication of mumps should receive more attention.

THE INCIDENCE OF ORCHITIS IN MUMPS.

Orchitis as a complication of mumps is confined to the age of puberty and adolescence. Rare exceptions to this are on record. Steiner[14] reports a case of orchitis in a nursing infant nine months old.* Fabre[16] reports a case in a boy of nine, and Armand‡ reports orchitis followed by atrophy in a boy of eleven. The incidence of orchitis apparently decreases in direct proportion to the incidence of the disease in advancing years.

The occurrence of orchitis varies in different epidemics of mumps, just as the disease itself varies in severity as well as in its complications. In schoolboys the incidence is much the same as in soldiers, and is subject to the same variations. Luehe[12] had only one case of orchitis among 118 cadets. Dukes[8] found a variation from 3.3% to 37.5% in different epidemics of mumps at Rugby School. During the same epidemic the incidence of orchitis varies greatly. In April, 1915, Massary and Tockmann[17] found orchitis in 27%, and in May of the same year in only 5%, with practically the same number of cases of mumps in each of these months. In Capitan's[18] series of 700 cases of mumps at the military hospital at Bégen, there were 50 cases of orchitis out of 316 cases of mumps in 1914, 1915, and 1916, or 16%; in 1917, there were 28 cases out of 189, or 15%, and in 1918 there were 49 cases out of 195, or 25%. At the Military School in Halifax, Brown[19] found orchitis in 50% in one epidemic of 20 cases. In 12 cases of mumps on board H. M. S. *Ardent*, reported by Noble,[20] orchitis developed in every instance.

Weigert[21] found that, out of 39 cases of mumps from the cavalry, 11 developed orchitis, while out of 40 cases of mumps from the infantry only one developed this complication. These findings so impressed this medical officer that he recommends dismounted drill for cavalry during an epidemic of this disease. Weigert's conclusions are not supported by such military and naval statistics as I have been able to collect. Out of 1106 cases of mumps in infantry 249, or 21.6%, developed orchitis. From the cavalry I could collect only 123 cases of mumps, of whom 25, or 20.3%, developed orchitis. If we add to these the 39 cases of Weigert we have 162 cases among cavalry with orchitis in 22.2%, which is practically the same as among infantry. We might as well advise shore duty for sailors under such circumstances, in view of the statistics from the good ship *Ardent* with orchitis of 100%, were it not that Manine[22] found 13 cases of orchitis out of 122 cases of mumps on ships of the French Navy, or 11%, while Clement* found 122 cases of orchitis out of 443 men and officers with mumps from the United States Navy, or 28%,—most of whom were doing shore duty. Weigert's recommendation is extremely interesting, but it lacks convincing testimony in its favor.

Védrènes† found, in a study of 25 epidemics of mumps, an incidence of orchitis in 26%. Longuet‡ collected 1555 cases of parotitis with 389 cases of orchitis, or 25%. Out of 4397 cases of mumps at Camp Wheeler, Radin[9] reports orchitis in 13.91%.

From the records at my disposal in which the percentage of orchitis is given, I have collected from all sources 8153 cases of mumps, with 1468 cases of testicular involvement, giving a total incidence of 18.0%.

UNILATERAL AND BILATERAL ORCHITIS.

The orchitis may be unilateral or bilateral. Strange to say, the right testicle is said to be more often affected than the left. The statistics I have accumulated seem to justify this idea, but the difference is not sufficiently great

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During an epidemic of mumps the father, mother and infant all contracted the disease; the father and the infant both having orchitis. In the latter the right testicle was involved. The left testicle was not fully descended.

The case of orchitis in a boy of four, cited by Comby[1] from de Cérenville,[15] does not appear to be a case of mumps. The original article suggests a case of septicemia and general adenitis.

Quoted by Comby, F., in Traité des maladies de l'enfance, by Grancher, Comby, and Marfan, Paris, 1897, p. 278.

Unpublished statistics on the complications of 448 cases of mumps from the U. S. Navy treated at the Haynes Memorial Contagious Hospital during 1917 and 1918, by Samuel A. Clement, M.D., resident physician.

Cited by Schottmüller, *op. cit.*, p. 44.

Cited by Soltmann,[23] *op. cit.*, p. 248.

TABLE I.

THE INCIDENCE OF ORCHITIS IN MUMPS.

AUTHOR	REFERENCE	CASES OF MUMPS	CASES OF ORCHITIS	ORCHITIS PER CENT.
Infantry.				
Granier	24	495	115	
Delmas	25	125	21	
Servier	26	84	23	
Martin	27	48	9	
Calmette	28	55	10	
Laurens	29	118	32	
Jouloux	30	35	14	
Chauvin	31	45	16	
Weigert	21	40	1	
Jourdan	32	61	8	
TOTAL		1106	249	21.6
Cavalry.				
Madamet	33	56	7	
Gérard	34	43	13	
Fournié	35	24	5	
Weigert	21	39	11	
TOTAL		162	36	22.6
Miscellaneous Branches: Army and Navy.				
Catrin	36	159	43	
Servier	26	21	8	
Antony	37	42	7	
Rizet	38	22	10	
Noble	20	12	12	
Manine	22	122	13	
Luehe	12	122	1	
Comby*	1	165	60	
Helber	39	15	5	
Brown	19	20	10	
Massary and Tockmann ...	17	243	59	
Capitan	18	690	127	
Moser and Arnstein	40	30	3	
Radin	9	4397	611	
Clement	1.c.	443	122	
Sorel	56	35	15	
Settekorn	71	38	13	
TOTAL		6576	1119	17.1
Civilian.				
Dukes	8	186	43	
Edgecomb	41	33	2	
Tuke	42	10	1	
Hammersley ...	43	80	18	
TOTAL		309	64	20.7
Summary.				
Infantry		1106	249	21.6
Cavalry		162	36	22.2
Misc. Army and Navy		6576	1119	17.1
Civilian		309	64	20.7
TOTAL		8153	1468	18.0

to warrant us in attaching any significance to the matter. Bilateral orchitis is considerably less frequent than bilateral parotitis.* The accompanying table shows 209 cases of orchitis out of a total of 1208, or a percentage of 17.0. When both testicles are involved, one is apt to become affected three to nine days after the other, rather than the two simultaneously. It is sometimes observed that the orchitis develops on the same side as the parotid swelling, and that with the involvement of the other parotid the other testicle becomes affected. This was particularly so in three small series (Noble,[18] Dukes,[8] Brown[19]). More stress has been laid on this coincidence than is warranted by the results recorded in the literature. According to the law of chances, with only two parotids and two testicles, the occurrence of the orchitis on the same side should not be looked upon as so remarkable. As a matter of fact the combinations seem to equal each other in the long run. The only thing of real interest and significance is that bilateral orchitis is proportionately less frequent than bilateral parotitis.

TABLE II.

INCIDENCE OF BILATERAL AND UNILATERAL ORCHITIS.

AUTHOR	REFERENCE	CASES OF ORCHITIS	RIGHT ORCHITIS	LEFT ORCHITIS	DOUBLE ORCHITIS
Rilliet	1	23	13	6	4
Jourdan	32	11	7	3	1
Servier	26	26	15	5	2
Catrin	36	43	18	12	13
Laurens	29	32	9	17	6
Dukes	8c	6	4	2	0
Radin	9	554	231	221	102
Clement	l.c.	122	52	45	25
Settekorn	71	13	4	2	7
Heller	61	28*	12	14	2
TOTAL		858	365	327	162
Calmette	28	10			1
Rizet	38	10			7
Dogny	3	27			4
Jouloux	30	14			1
Ringsberg	45	279			33
Brown	19	10			1
TOTAL		350			47
TOTAL		1208			209

* Two of these were of doubtful mumps origin.

There is a general impression that the greater the severity of the parotitis, the more likelihood there is of testicular involvement. In my own experience this is to a certain extent true in so far as the concomitant involvement of parotid and testicle is concerned. That is to say, the severest cases of parotitis seem more apt to develop orchitis, and to develop this before the parotitis has subsided. Perhaps the apparent severity of the parotitis in these cases is really

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In Massary and Tockmann's series of 243 cases of mumps there were 191 cases of bilateral parotitis or 79%, and 52 unilateral cases, or 20%, of which 26 were on the left side and 26 on the right (*loc. cit.*).

In 128 cases of bilateral parotitis reported by Catrin, 55 began on the right side, 53 on the left side, and in 14 both parotids began to swell simultaneously (*op. cit.*, p. 638).

In a recent series of 120 cases reported by Gradwohl[44] *et al.*, the right parotid was involved in 70 cases and the left in 77; bilateral parotitis occurred in 43.

the result of the prodromal symptoms of the orchitis, the general constitutional disturbance being thus augmented before the orchitis is recognized. It is particularly in these cases that we are apt to get the symptoms of meningismus or encephalitis. On the other hand, the late development of an orchitis seems to bear little or no relation to the severity of the preceding parotitis. It is also stated that orchitis is more apt to follow bilateral mumps than when only one parotid is affected. This is borne out in Catrin's series.* Again, it is my experience that when the orchitis comes on within three or four days of the onset of the parotid swelling, the orchitis usually accompanies a bilateral parotitis, but when it is delayed one or two weeks, the preceding parotitis is just as apt to have been unilateral as bilateral.

(To be continued.)

In Catrin's series the 13 bilateral cases of orchitis developed after 13 cases of double parotitis; of the 30 unilateral orchitides, 26 were in cases of double parotitis, 2 occurred with a left, and 2 with a right parotitis (*op. cit.*, pp. 634, 635).

◆

WHY RELIEF OF JOINT TROUBLES IS EASY OR DIFFICULT.

BY HERMAN W. MARSHALL, M.D., BOSTON.

NEW methods continue to multiply for handling joint affections, and already there are more methods and agents extant than can be used skilfully, yet perfection in treatment has not been attained. Compared with the superabundance of kinds of treatments, unbalanced incomplete conceptions of natures of joint troubles stand in striking contrast.

Logically, therefore, some convenient device should be contrived whereby complex anatomic and physiologic relationships between organs that exert influences on joints directly or indirectly can be recalled more completely and accurately for quick making of clinical judgments in practice. Then, with improved conceptions and judgments, relief will be secured that otherwise will continue to be impossible indefinitely although methods and agents are greatly increased.

A graphic scheme is of service in illustrating the balance among favorable and unfavorable influences that always act in combinations on articular tissues, and of indicating a second balance existing between the sum of external influences in their reactions with internal resistance within joints.

There are only four main ways by which any joint can be influenced, namely through

A. *Mechanical influences* due to body motions, pressures of body weight on joint tissues, and external traumata.

B. *External influences* of mechanical traumata and pressures, heat, cold, electricity, and light rays of various kinds.

C. *Nervous influences.*

D. *Vascular influences* of varied chemical and physical natures.

Internal resistances of joints to outside influences depend on

E. Variable initial resistances of joint tissues existing at birth.

F. Presence or absence of local disease originating within joints.

G. Influence of age, and the results of favorable or unfavorable combinations of external influences acting in the past on joints continuously or intermittently.

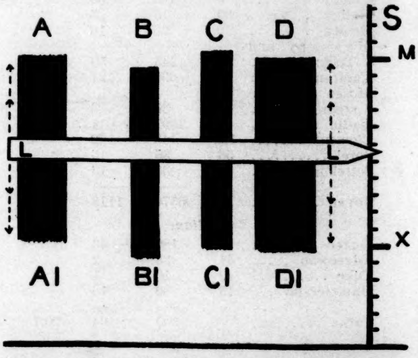

FIG. 1.—See text.

In Figure 1 let the balance of equilibrium between favorable and unfavorable outside influences be indicated by the arrow L, and the broad bands A, B, C, D, and A1, B1, C1, D1, may represent respectively the four main groups of favorable and unfavorable forces that are pulling it either upward or downward. The arbitrary scale S serves to measure the exact level of the balance of equilibrium of combined external forces from time to time.

Upon the scale S can be marked points X and M to represent ranges of internal resistances of joints, for there will be always some point X on the scale below which the indicator L cannot descend without development of abnormal symptoms. This transition point of lowest normal joint function will vary in position from time to time according as external combinations remain at high or low levels, and dependent also on changes due to internal causes, local disease, and old age. There will be a variable upper limit M in the range of normal joint function from time to time that changes with changes of X.

Figure 2 attempts to represent roughly the variable levels of X and M in different individuals at birth, average levels for X and M, levels to represent old age, acute infections and chronic local infections.

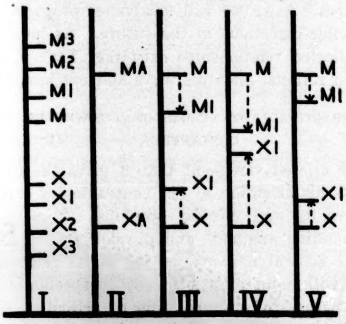

FIG. 2.—Graphic illustration of variable internal resistances of joints.
I. M-X, M1-X1, M2-X2, M3-X3, arbitrary representations of different ranges of normal resistances of joints at birth in different individuals.
II. MA-XA, arbitrary representation of average range of normal joint resistance.
III. M-X shown narrowing in range to M1-X1 under influence of old age.
IV. M-X shown narrowing in range to M1-X1 under influence of acute infection.
V. M-X shown narrowing in range to M1-X1 under influence of chronic infection or other mild local joint disease.

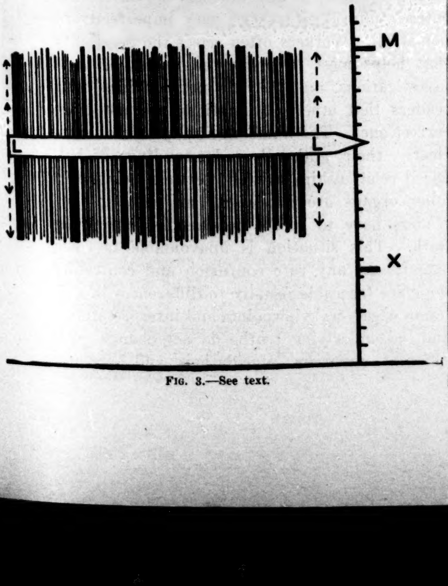

FIG. 3.—See text.

Figure 3 is supposed to show the four main groups of forces separated into some of their component subdivisions, and it serves to emphasize the complexity of the balance between external forces acting on joints. A list appended below includes 64 favorable and 70 unfavorable items, and illustrates still more emphatically what is indicated graphically in Figure 3. The latter does not indicate unfortunately how any one or more trivial influences, either favorable or unfavorable, may grow slowly or suddenly to important size, or how any one or more prominent factors may dwindle suddenly or slowly into insignificance without loss of continuity of action.

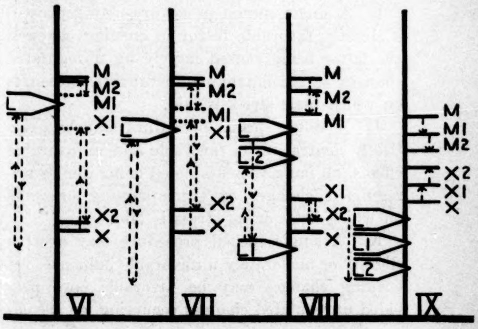

FIG. 4.—Graphic illustration of variations in balance of external forces and internal joint resistances under clinical conditions.
VI. *Moderate joint trauma.* L sinks to a lower level and returns immediately to its previous level. M and X quickly narrow to M1-X1, then gradually return to M2-X2.
VII. *Severe joint trauma.* L sinks to a still lower level abruptly and returns immediately to its previous position. M-X narrows quickly to a degree that leaves X above L at M1-X1. Inflammatory joint symptoms develop that gradually subside as M2-X2 is reached.
VIII. *Moderate toxic vascular condition with joint involvement.* L drops slowly to L1 and then rises gradually with recovery to L2. M-X narrows gradually to M1-X1 with development of abnormal joint symptoms, then returns gradually with recovery to M2-X2.
IX. *Progressive disease with local joint involvement.* L drops steadily from L to L1 and to L2. M-X narrows to M1-X1 and to M2-X2, tending to reach a range of zero as a limit.

Figure 4 illustrates a few clinical examples in which the indicator L changes position while X and M vary in response to outside influences.

This graphic scheme helps to show clearly the general nature of every arthritic problem, that the aim of all treatments consists in raising and maintaining a high level of the indicator L, also in increasing the range of joint resistance M-X through removal of internal joint defects.

The writer believes this standard conception should be kept in mind prominently in all clinical cases, and that peculiarities of each as revealed in clinical histories, tests, and examinations should be assigned their proper places in it, with due regard to strengths and lengths of time of actions of each particular influence as well as to its kind. The use of a standard conception will tend to lead to greater avoidance of unbalanced judgments, will modify interpretations of clinical observations in important respects, and will direct attention to most vital phases of treatments. It may help to recall the truth of the following possibilities:

Improvements in patients' conditions noticed to follow single special therapeutic procedures may be results of different combinations.

H. A single special procedure may be a very important factor occasionally and outweigh all other changes in the balance so that it is the main cause for favorable results that ensue.

I. A single special procedure may represent a slightly favorable factor in ensuing changes, the latter being caused largely by unregulated changes or accompanying therapeutic measures on which little stress is laid.

J. A single special procedure may be practically neutral in its favorable and unfavorable effects, all improvements noted being due to unregulated changes or accompanying measures on which little or no stress is laid.

K. A single special procedure may exert a slightly or moderately unfavorable influence, yet ensuing changes may be favorable ones provided unregulated changes occurring, or accompanying therapeutic measures, are sufficiently great to outweigh the single special unfavorable influence.

Use of a standard conception may increase accuracy of judgments in many directions, and this means improvement in weakest, most important features of the present stage of medical progress and specialism when broad comprehensions of problems naturally diminish rapidly in accuracy as knowledge increases rapidly and becomes increasingly confusing.

OBJECTIONS TO USE OF A STANDARD CONCEPTION OF ARTHRITIS.

It may be argued by some persons that errors of judgment in using such a complicated conception will exceed errors attending the use of purely empirical methods. Probably this will be true when judgments are made in hasty superficial manner, yet solution of the difficulty lies in making better judgments nevertheless, not in extensions along empirical lines that only make a bad situation worse. Furthermore, as knowledge extends and groups of influences known to act on joints are split into smaller, less important divisions to become objects of special study, the likelihood increases that unbalanced inferences drawn from such studies will become increasingly erroneous until finally medical practice approaches the effect of charlatanism disguised on a scientific basis, unless judgments can be improved in some manner.

Physicians not infrequently ask the question what difference it makes whether explanations and understandings are strictly correct as long as patients get well. This attitude did not advance medicine in the past, does not encourage confidence now, nor will it advance progress in profitable directions in the future. As long as complicated relationships exist they have to be met in rational scientific ways and not ignored.

PRACTICAL ADVANTAGES OF A STANDARD CONCEPTION.

The altered viewpoint that it gives the user directs his attention to (1) contradictory clinical results and clinical opinions, (2) to the commanding anatomic and physiologic position of the central nervous system in its relationships with joint affections, (3) to speculations as to natures of obscure types of arthritis, (4) and it increases his efficiency in treatment of patients.

1. If one examines special methods and apparently contradictory results as recorded in medical literature, and looks for precautions that have been taken in judging possibilities mentioned under H, I, J, K, of the foregoing table, frequently it appears that the latter have entered into consideration very imperfectly or not at all. Workers often select the possibility that helps most to prove the values of their investigations, and they do not convince their readers that other explanations are not more correct ones. The numbers of papers that state clearly their authors' understandings of balanced relationships existent between joints and other organs are not in the majority so that readers have to accept conclusions largely on faith. This situation is unavoidable to some extent. At any rate confusion and contradictions are traceable usually to differences in different observers' viewpoints and interpretations, and, as underlying truths do not change with different observers, elucidations and harmony

can come only through better general agreements.

Applied medical science has its distinct limitations and it fails sometimes when it attempts to include the field of logic or other exact sciences involved more or less in best treatments for patients. Clinical papers are seen to be untrustworthy not infrequently because they are obviously very illogical although correct in other important scientific respects.

A standard conception of arthritis therefore helps the user to judge, accept or reject with increased skill new information published in medical literature.

2. Obscure relationships between the nervous system and the joints are among the first to be lost from view amid the confusing abundance of facts that have to be considered. It is easy to remember that strong emotions of various kinds exert decided influences on many organs because it is possible to recognize lachrymation, sweating, salivation, muscular trembling, accelerated heart rate, increased secretion of urine, diarrhoea or nervous dyspepsia, accompanying or following such nervous activity. Less tangible are so-called trophic nervous disturbances, variations of muscle tone, and slight continuous nervous control supposed by some to be exerted on the functions of various organs.

These slight nervous influences always will remain beyond powers of belief of those persons who demand extremely simple plain proofs of the complicated workings of an extremely complicated mechanism, because their characteristics are inherently obscure. Yet removal of foci of depressing mental stimuli in certain types of chronic joint disease probably is of much more importance than removal of infective foci in some instances. Joints succumb presumably in some instances to mild continuous harmful effects of circulating bacterial toxins. At other times they presumably succumb to altered vascular conditions which are induced by more or less continuous, slightly imperfect nervous control of the various organs, and which produces accumulations or deficiencies of substances normally in circulation. Joints are harmfully influenced by such unusual proportions of normal substances as when circulating urates in gout are associaeed with abnormal joint symptoms. There may be direct trophic influence of the nervous system on joint tissues in addition, but the facts can be neither proved nor disproved experimentally.

The writer is convinced from practical experience that conservative rational psychotherapy has shown its immense value already along with other therapeutic means in controlling certain obstinate cases of joint disease.

3. A standard conception of arthritis may lead to speculations as to the nature of rheumatoid (atrophic) arthritis through consideration of the clinical manifestations of the disease, and by comparisons with gout.

It is known that faulty elimination of urates is associated in some was with gout, and that urates crystallize out of the blood at times in the various tissues. Also it is understood that there are possibilities for accumulations of urates in circulation through faulty actions of kidneys; or excessive formations by the body tissues that have imperfect nervous control or from other defects within themselves; or through abnormally large ingestions of foods especially rich in urates; or through combinations of these causes.

Could a similar relationship exist between creatinin metabolism and rheumatoid arthritis? Creatinin is a product of normal metabolism and occurs in proportions and amounts that are not widely different from those shown by urates. It is derived particularly from muscles, and muscles atrophy particularly rapidly in acute attacks of rheumatoid arthritis. Is it possible that this soluble substance that does not crystallize readily and thus show conveniently its relationships, can affect joint and other tissues in characteristic subtle ways as urates analogously react on different tissues in gout? It may be possible that an acute attack of rheumatoid arthritis is precipitated by a sudden temporary shutting down of excreting powers of kidneys for creatinin; or a sudden increase of circulating creatinin from rapidly wasting muscles which in turn may have temporary defective nervous control or other internal defects; or an unusual intake of creatinin in the food finally may reach the blood stream in unusual quantities after passing the protective regulating apparatus of the alimentary tract; or there may be combinations of these causes which produce sufficiently large proportions of circulating creatinin to influence harmfully the joints along with skin and other tissues. It should be remembered that harmful proportions of circulating substances in one instance are not harmful necessarily in another case, because in the first instance joint resistances may be low from congenitally low resistances with subsequent poor balance of equilibrium of combined external forces acting on them; while in the second case there may have been high initial resistances of the joints at birth with subsequent very favorable balance of combined external forces acting on them. The latter consequently will withstand larger quantities of slightly irritating circulating substances for longer periods of time without development of abnormal symptoms than the first mentioned joints are able to do.

Authoritative answers can be made to the questions suggested only through painstaking, prolonged chemical experiments, and it is doubtful whether chemistry even can prove or disprove convincingly the ideas that have been suggested, because, as with gout, there are too many variable factors concerned to permit absolute confirmations or rejections of the stated ideas. Perhaps the latter are valuable as a tentative theory and may be more desirable than no rational conceptions at all.

4. A standard conception of arthritis increases the user's efficiency in treating patients because it permits him to realize that favorable balances may be restored often in more than one way.

An unbalanced view demands immediate removal of a single carious tooth or a slightly defective tonsil because of presumable slight absorptions of toxins into circulation from such sources, and it is argued that a very trivial factor may be the last straw to upset the delicate normal balance of joint functions. A more deliberate opinion will be based on more factors involved in the case. It may happen that a marked gastro-enteric defect is much more important, and its correction may lead to such general improvement of health that not only are joint troubles relieved but mouth infections may subside also without further purposeful care.

The presence of unusual crepitus in a knee joint may decide an enthusiastic surgeon that the joint lining should be inspected and trimmed if necessary immediately, and this is done often successfully. A more deliberate opinion will consider as well the possibility of relief through less mechanical use of the knee and through improvement of the patient's general condition. Differences of opinions undoubtedly always exist regarding appropriate times for operations, and patients are likely to demand explanations of the grounds for operations more carefully, whether patients' welfares are uppermost in the physician's mind when he gives his views, or whether the opportunity to do successful yet unnecessary operations determines his decisions.

Specific reactions of joint tissues possibly may be recalled by a standard conception of arthritis, and the fact recognized that a joint may be resistant in certain directions and non-resistant in other directions. For example, cases of rheumatoid arthritis that are non-resistant presumably to metabolic substances may improve greatly under infectious conditions that modify metabolism in marked degree. Such a patient may have his chronic arthritis improved in surprising manner by an attack of pneumonia or a severe erysipelas infection although these infections may be causes of infectious joint troubles in other patients.

One extremely important fact brought forcibly to view by the graphic picture of joint balances is that all therapeutic measures may be found both on favorable and unfavorable sides of the balance at one time or another, most beneficial methods becoming harmful under certain circumstances.

This happens if their actions are continued too long or with too large doses, or if they are carried out too thoroughly in case of surgical measures. Very often it is difficult to know precisely when to stop administrations to gain maximum benefits, and consequently proper end points are passed not infrequently.

The topic of when to give, and when not to give, and particular treatment is the matter that needs continuous careful discussion even more than discussions of new principles and new methods. For these small details that one occasionally hears referred to scornfully and compared to trivial details of household cookery nevertheless control successes and failures in treatment to very important degrees.

This difficulty can be minimized to a certain extent through keeping more clearly in mind the fact that most tissues react to many therapeutic influences with primary increases and secondary later diminutions in their normal functions. Yet these well known details are so difficult to handle that search continues to be made for new remedies of more miraculous natures that do not possess such disadvantages. It is safe to predict that none ever will be found until living tissues change their natures. Each new discovery that is applied rather indiscriminately at first always until its limitations are discovered, will take its place finally in the group of other useful agents with its proper restrictions, if it is not discarded entirely.

While search for marvellous remedies goes on there is a quiet forgetting of established physiological principles that were learned in perfunctory manner in medical school courses, and it is true that many of us should review at more frequent intervals the elementary principles of physiology. There can never be any single specific remedy or cure-all that can ever correct perfectly the effects of numerous widely differing kinds of influences, with their varying strengths of action, as the latter combine to act on the joints.

Relief of joint diseases is easy when some important infective focus in whatever location it happens to be situated can be easily and completely eradicated. Relief is easy when marked local defects in joints can be removed by surgical means, or when mechanical supports satisfactorily combat important temporary mechanical causes. It is easy when derangements of balanced relationships between organs can be corrected by simple diet regulations and regulations of eliminative functions, or when rest, or drug treatment for short periods, or physical therapeutic measures soon restore a normal balance of relationships among the organs of the body.

Relief of joint conditions is difficult when there are deeply seated infective foci that cannot be removed; when any important organ, the kidney for example, exhibits progressive disease of marked degree; when balanced relationships between organs are easily deranged and difficultly corrected as when unstable balance of the nervous system causes recurrent upsets of general metabolic nature; and when joint structures are involved in intractable disease like neoplasms, syphilis, or tuberculosis.

On the whole a standard conception of the balanced nature of joint diseases assists any physician to adhere more closely to the principles and ideas which are best in the long run for patients, for the welfare of the medical profession and for himself; and occasionally it makes possible successful results in seemingly impossible cases.

FAVORABLE AND UNFAVORABLE INFLUENCES ACTING DIRECTLY AND INDIRECTLY ON JOINTS.*

Favorable.	*Unfavorable.*
Mechanical	Mechanical
1. Favorable amounts of normal use of joints, and of weight bearing.	1. Unfavorable amounts of normal use of joints, and of weight bearing.
2. Favorable anatomical development of joints for functional activity.	2. Unfavorable anatomical developments and deformities.
3. Surgical removal of harmful anatomic peculiarities, and surgical correction of harmful deformities.	3. Unsuccessful surgical treatments that increase local anatomical defects or deformities.
External.	External.
4. Favorable degrees of heat and cold and favorable climatic changes.	4. Unfavorable exposure to heat or cold or to unfavorable climatic changes.
5. Favorable influences of treatments locally with radiant heat, baking, electricity and massage.	5. Unfavorable influences of overtreatment locally with radiant heat, baking, electricity and massage.
6. Beneficial influences of mechanical supports.	6. Unfavorable influences of too much or too prolonged mechanical support.
	7. Unfavorable influences of mechanical traumata, single or repeated.
Nervous.	Nervous.
7. Favorable trophic nervous control of joints (?)	8. Unfavorable nervous control of joints by trophic nerves (?)
8. Favorable indirect influences on joints of favorable nervous control of the various organs of the body with resultant changes in the blood stream.	9. Unfavorable indirect influences on joints of faulty action of the nervous system on the various organs of the body and with resultant unfavorable changes in the blood stream.

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* This list could be made more complete and more accurate, but it is sufficiently so, in spite of some doubtful items, to serve the purpose for which it is intended, namely, to indicate the great complexity of the balance between favorable and unfavorable influences acting at times on the joints.

Vascular.

(as affected by kidney functions)

9. Favorable function of renal epithelium in removing from the blood urates, creatinin, bacterial toxins, products of bacterial metabolism, and all waste products that may influence joints harmfully.
10. Favorable changes of renal functions resulting from improvement in nervous control of kidneys (?)
11. Favorable changes of renal functions resulting from favorable cardiac changes.
12. Favorable changes of renal functions resulting from favorable changes of digestive functions.
13. Favorable changes of renal functions resulting from favorable internal glandular changes.
14. Favorable changes of renal functions resulting from favorable muscular changes and activities.
15. Favorable changes of renal functions resulting from improved functions of the skin.
16. Favorable changes of renal functions resulting from favorable changes of quantities of water and salts taken.
17. Favorable changes of renal functions resulting from drugs favorably influencing kidneys.
18. Favorable changes of renal functions following surgical operations on kidneys.
19. Favorable changes of renal functions following fitting of mechanical abdominal belts and kidney pads.

Vascular.

(as affected by kidney functions)

10. Unfavorable function of renal epithelium in removing from the blood urates, creatinin, bacterial toxins, products of bacterial metabolism, and all waste products that may influence joints harmfully.
11. Unfavorable changes of renal functions resulting from unfavorable changes in nervous control of kidneys (?)
12. Unfavorable changes of renal functions resulting from unfavorable cardiac changes, and unfavorable changes of blood pressure.
13. Unfavorable changes of renal functions resulting from unfavorable changes of digestive functions with resultant increased work for kidneys.
14. Unfavorable changes of renal functions resulting from unfavorable internal glandular changes.
15. Unfavorable changes in renal functions following serious skin lesions.
16. Unfavorable changes in renal functions resulting from unfavorable changes in quantities of water and salts taken.
17. Unfavorable changes in renal functions resulting from overtreatment with drugs affecting the kidneys.
18. Unfavorable changes in renal functions following unsatisfactory surgical operations on kidneys.
19. Unfavorable changes in renal epithelium resulting from bacterial infections of the kidneys, circulating metallic poisons, alcohol, local kidney disease, renal calculi, neoplasms, traumata.

Vascular.

(as affected by digestive functions)

20. Favorable function of gastro-enteric mucosa, gastro-enteric musculature, pancreas and liver.
21. Favorable changes in digestive functions resulting from improved nervous control.
22. Favorable changes in digestive functions resulting from improved cardiac functions and favorable blood pressure changes.
23. Favorable changes in digestive functions resulting from improved renal functions.
24. Favorable changes in digestive functions following recovery from serious pulmonary diseases.
25. Favorable changes in digestive functions resulting from operations on digestive organs.
26. Favorable changes in digestive functions following use of abdominal mechanical supports.
27. Favorable changes in digestive functions resulting from movements of the body and muscular activity.
28. Favorable changes in digestive functions produced by tonic drugs that affect favorably the gastroenteric mucosa, peristalsis, or liver or pancreas.

Vascular.

(as affected by digestive functions)

20. Unfavorable function of gastro-enteric mucosa, gastro-enteric musculature, pancreas and liver.
21. Unfavorable changes in digestive functions resulting from defects in nervous control of digestive organs.
22. Unfavorable changes in digestive functions resulting from defects of heart or blood-vessels.
23. Unfavorable changes in digestive functions resulting from disturbances of normal renal functions.
24. Unfavorable changes in digestive functions due to developing pulmonary troubles.
25. Unfavorable changes in digestive functions resulting from unsuccessful operations on digestive organs.
26. Unfavorable changes in digestive functions due to visceral ptosis.
27. Unfavorable changes in digestive functions from excessive use of drugs affecting stomach, intestines, liver or pancreas.
28. Unfavorable changes of digestive functions due to faulty diets.

29. Favorable changes in digestive functions due to favorable diets.
30. Favorable changes in digestive functions in response to gastric or rectal lavage.

Vascular.

(as affected by cardiac functions)

31. Favorable strength of cardiac muscle and cardiac development.
32. Favorable changes in heart action resulting from proper exercise.
33. Favorable changes in heart action caused by favorable changes in its nervous control.
34. Favorable changes in heart action following relief of kidney defects.
35. Favorable changes in heart action resulting from relief of gastric distention and chronic digestive disturbances.
36. Favorable changes in heart action due to recovery from pulmonary troubles.
37. Favorable changes in heart action resulting from favorable changes in internal secretions.
38. Favorable changes in heart action produced by drugs affecting the heart favorably.
39. Favorable changes in heart action produced by hydrotherapy.

Vascular.

(as affected by pulmonary functions)

40. Favorable function of alveolar cells of the lungs.
41. Favorable changes in pulmonary functions modified by increased abundance of fresh air.
42. Favorable changes in pulmonary functions from proper exercise.
43. Favorable changes in pulmonary functions resulting from improved heart action.
44. Favorable changes in pulmonary functions induced by improvements in nervous control of respiration.
45. Favorable changes in pulmonary functions produced by subsidence of serious renal disturbances.
46. Favorable changes in pulmonary functions produced by pulmonary drugs.
47. Favorable changes in pulmonary functions resulting from physical therapy.
48. Favorable changes in pulmonary functions following surgical operations on pleura or lungs.

29. Unfavorable changes in digestive functions resulting from lack of bodily movements and muscular exercise.
30. Unfavorable changes in digestive functions due to local diseases of various sorts, inflammations, new growths, bacterial putrefactions of intestinal contents.

Vascular.

(as affected by cardiac functions)

31. Unfavorable strength of cardiac muscle and poor cardiac development.
32. Unfavorable changes in heart action resulting from lack of proper exercise.
33. Unfavorable changes in heart action caused by unstable nervous control of the heart.
34. Unfavorable changes in heart action resulting from defective kidneys.
35. Unfavorable changes in heart action caused by gastric disturbances.
36. Unfavorable changes in heart action produced by developing pulmonary troubles.
37. Unfavorable changes in heart action resulting from excessive internal secretions, notably thyroid secretion.
38. Unfavorable changes in heart action resulting from overdosage with heart stimulants.
39. Unfavorable changes in heart action from excessive stimulation with hydrotherapy.
40. Unfavorable changes in heart action from arteriosclerosis and increased peripheral resistance in the system of blood vessels.
41. Unfavorable changes in heart action due to pericarditis and endocarditis.
42. Unfavorable changes in heart action due to improper administrations of vaccines and sera, or to tobacco, coffee, etc.

Vascular.

(as affected by pulmonary functions)

43. Unfavorable function of alveolar cells in the lungs.
44. Unfavorable changes in pulmonary functions due to deficiencies of fresh air
45. Unfavorable changes in pulmonary functions caused by lack of exercise.
46. Unfavorable changes in pulmonary functions due to cardiac disease or defects.
47. Unfavorable changes in pulmonary functions from faulty nervous control of respiration.
48. Unfavorable changes in pulmonary functions due to development of serious renal disease and its effect on the respiratory nervous center.
49. Unfavorable changes in pulmonary functions from excessive use of drugs.
50. Unfavorable changes in pulmonary functions resulting from unsuccessful surgical operations on chest and lungs.
51. Unfavorable changes in pulmonary functions due to faulty posture.

49. Favorable changes in pulmonary functions due to corrections of faulty postures.

Vascular.

(as affected by functions of organs of internal secretion, bone marrow, lymph glands and formed elements of blood)

50. Favorable functioning of these various tissues.
51. Favorable changes in functions of these various tissues following favorable changes in action of other organs and in nervous control if the latter exists.
52. Favorable changes in functions of these various tissues after favorable administrations of drugs or extracts of glands of internal secretion, notably improvement in haemoglobin after administration of iron.
53. Favorable changes in function after surgical removal of portions of thyroid gland, or removal of infected lymph nodes and tonsils.

Vascular.

(as affected by dermal functions)

54. Favorable function of the skin.
55. Favorable changes of dermal functions resulting from improvements of functions of various other organs, notably the digestive tract.
56. Favorable changes of dermal functions due to vaso-motor changes in blood vessels of the skin, or due to massage, hydrotherapy, or local applications.

Vascular.

(as affected by muscular function)

57. Favorable muscular function and development.
58. Favorable changes in muscular functions due to favorable changes in nervous control, exercise, or improved functions in kidneys, digestive tract, and other organs.
59. Favorable changes from mechanical protection in weakened or irritated conditions.
60. Favorable changes in functions due to administrations of drugs that relieve muscle stiffness, or due to massage or other forms of physical therapy.
61. Favorable changes from surgical treatment following injuries.

Vascular.

(as affected by bacteria or their toxins, metallic poisons, therapeutic vaccines and sera)

62. Favorable influence of certain lactic acid bacteria in inhibiting growth of harmful intestinal putrefactive bacteria.
63. Favorable influence of various rheumatic vaccines and sera.
64. Beneficial effects of surgical removal of various bacterial foci that are contributing their harmful products to the blood.

52. Unfavorable changes due to development of pulmonary and pleural disease, and traumata of lungs, ribs and pleura.

Vascular.

(as affected by functions of organs of internal secretion, bone, marrow, lymph glands and formed elements of blood)

53. Unfavorable functioning of these various tissues.
54. Unfavorable changes in functions of these various tissues following unfavorable changes of function of other organs and of nervous control if the latter exists.
55. Unfavorable changes in functions of these various tissues after excessive administration of drugs or glandular extracts.
56. Unfavorable changes in functions after too much surgery on the thyroid gland.
57. Unfavorable changes in functions of these various tissues resulting from development of serious local pathological states in any one or more of them.

Vascular.

(as affected by dermal functions)

58. Unfavorable function of the skin and its glands.
59. Unfavorable changes of dermal functions resulting from digestive troubles or disturbed functions of other organs.
60. Unfavorable changes in skin due to harmful vasomotor changes or trophic nerve disturbances.
61. Unfavorable functions due to burns or serious skin diseases.

Vascular.

(as affected by muscular function)

62. Unfavorable muscular strength and development.
63. Unfavorable changes of muscular function due to defects in nervous control.
64. Unfavorable changes of muscular function following improper exercise.
65. Unfavorable changes of muscular function from immobilization by mechanical means.
66. Unfavorable changes of muscular function resulting from defective functions of kidneys, digestive tract, and other organs.
67. Unfavorable changes of muscular function due to local muscle disease or traumata.

Vascular.

(as affected by bacteria or their toxins, metallic poisons, therapeutic vaccines and sera)

68. Unfavorable influences of bacterial foci in tonsils, teeth, naso-pharynx, gastro-enteric tract, genito-urinary tract, or other organs that contribute harmful bacteria or their products to circulating blood.
69. Harmful influences of therapeutic vaccines and sera from overdosage.
70. Unfavorable influence of lead in circulation in chronic lead poisoning.

THE INFLUENCE OF THE MEDICAL PROFESSION ON MEDICAL LEGISLATION AND THE PUBLIC WELFARE

By John B. Hawes, 2nd, M.D., Boston.

In a recent editorial in the Boston Medical and Surgical Journal the following statement was made: "The report of the Joint Committee in Legislation published in last month's issue of the Journal is discouraging to those who hoped for progressve action on the part of the Legislature this year. It is discouraging to realize how little influence, except in a negative way, the medical profession exerts through the Joint Committee. While no backward step has been taken, the record is one of complete failure to gain any step forward."

Such a statement as this, which is known to be the truth as far as Massachusetts is concerned, might with few exceptions be applied with equal force to the condition of affairs in almost every other state of this country. From 1907 to 1920, as Secretary of a State Commission which was in charge of the Massachusetts sanatoria for consumptives and of the tuberculosis campaign in this State in general, it was part of my duties to attend hearings not only in regard to tuberculosis and matters directly related to my board of trustees but also those concerning health matters in general. What has been accomplished at such hearings during these years by the various committees on legislation representing the Massachusetts Medical Society bears a striking resemblance to what has been accomplished this year, as described in the editorial quoted above. Anti-vaccination bills have been successfully opposed and killed each year, though with difficulty; many good measures have been supported and occasionally their passage secured; bad bills have been opposed and occasionally their enactment prevented. Yet, as a whole, it is undoubtedly true that the influence of the medical profession in this state as represented by the Massachusetts Medical Society on its legislative body, the Senate and House of Representatives, is conspicuous by its absence.

Other organizations representing various groups of men, industries, trades and occupations are not without influence at the State House. It is an undoubted fact that a union such as that of the bricklayers or that of the amalgamated cigar makers can exert a powerful influence on those who represent them; any large public service corporation seems to be able to make its wants known quite definitely and clearly on Beacon Hill. In the *Boston Evening Transcript* of May 22, 1920, interesting comment is made on the influence of the now powerful Farmers' party in Ontario, Canada. On two recent occasions when the representatives of the farmers in the Legislature seemed about to take certain action that did not meet with the approval of those they represented "the executives of the Farmers' Organization issued a broadside to Farmers' Clubs throughout the country with the result that the members in the House were deluged with such a flood of telegrams and letters that they immediately reconsidered their former decision."

I do not for a moment criticize these various committees and the men serving on them who have represented the Massachusetts Medical Society and other medical organizations of the State. These men have given freely of their time and energy and have worked long and faithfully to bring about what they knew and what we all knew was for the good of the community, and yet the fact remains that they have failed in the vast majority of instances to produce results. Why have they failed? The answer to this question is one that vitally concerns every physician in the country. Why does a group of men, each of whom has spent the best years of his life in training for the noblest and best of of all professions, have so little influence in the community? Surely our aims and ideals are of the best. This no one can deny. Then it must be our means and methods that are at fault. No other conclusion is possible.

With this idea firmly fixed in my mind, I wrote a personal letter to the Secretary of every State Medical Society in the country, describing what I believed to be a most unsatisfactory state of affairs in Massachusetts and asking for the details as to how each respective medical society attempted to solve this problem and the results obtained. My answers were interesting in the extreme. A summary and brief synopsis of these letters is here given.

There were 32 answers to the 48 letters that I sent out. In 17 instances, over 50%, the reply was to the effect that the medical society had a committee on State and National Legislation or its equivalent which accomplished little or nothing. Excerpts from some of these letters show the general trend of answers and likewise a marked similarity:

Arizona: "This association has a legislative committee which takes whatever action may seem proper. Its real value is distinctly limited."

California: "As far as I can make out, the California State Medical Society has nothing to do with legislative matters."

Connecticut: "There is a legislative committee which appears in opposition to anti-vaccination bills. It rarely accomplishes anything. They have no satisfactory system."

Delaware: "There is a committee on public policy and legislation. It has no influence on legislation."

Iowa: "There is a legislative committee of five members. The amount accomplished is largely due to the personal efforts of the chairman of this committee. There is no organization in the Society."

Kansas: "The influence of the State Society with the State Legislature is not of great importance. There is a committee on legislation which accomplishes little or nothing."

Maine: "There is a legislative committee which appears at hearings and which has little or no influence. The greatest help comes from physicians who are members of the legislature. The medical profession at large has little or no influence."

Minnesota: "The Association has a legislative committee which is somewhat inactive."

Nebraska: "There is a Committee on Public Policy and Legislation which accomplishes nothing." The writer does not believe that anything can be accomplished by legislative committees or by direct influence.

New Hampshire: "The Society has a legislative committee which appears before the House and Senate committees on various bills." So far, the writer believes this committee has been a failure.

New Jersey: "There is a legislative committee which has no influence. The only influence that the medical profession has is through its members who are the family physicians of the legislators."

New Mexico: "There is a legislative committee which accomplishes nothing."

Porto Rico: "The Medical Society of Porto Rico has a legislative committee, but so far it has not accomplished anything favorable for the medical profession."

Wisconsin: "There is a legislative committee which does nothing. They have at times maintained a paid lobbyist which accomplished nothing. A committee before the Legislature seems invariably to arouse suspicion."

North Dakota: "The legislative committee plan is a failure."

South Carolina: "Legislative committees amount to little or nothing."

West Virginia: "There is a Committee on Public Policy and Legislation," which in the writer's opinion, has been a failure. "Things are put off until there is dire need of action, and then it is too late to do anything."

That the situation is not quite so bad as the preceding replies would indicate is shown by the following extracts from my replies from other states and comments on them.

Idaho: My correspondent believes that the only successful plan is for the Society to put a competent paid man on the job with instructions to get results. No details as to how he is to do this are given.

Illinois: The principles under which the Illinois Society acts are: (1) A good, live man at the head of the legislative committee, who lives at the Capitol. (2) Organization of medical men throughout the State, so that they can see their representatives in the Legislature while they are at home on week ends. (3) Information given to the medical men in each county throughout the State pertaining to bills that are introduced. (4) Sufficient funds: In Illinois each member of the State Society is assessed fifty cents each for this purpose. (5) The emphasizing of the fact that there is no personal or selfish purpose in the arguments brought forward; that it is simply a question of keeping up the standard of health and medical legislation as it should be. Further details are given.

Louisiana: There is a Committee on Public Policy and Legislation composed of the most influential physicians in the state. All matters are referred to this committee. The members visit the Capitol, if necessary, and use whatever influence they can either for or against legislative matters. Its work seems to be fairly satisfactory.

Maryland: There is a legislative committee appointed each year to take charge of medical legislation, but this method has not proved to be very effective. This year the plan is to organize the physicians throughout the State into committees, which will work with the candidates for election immediately after the primaries. The idea is to have the candidates informed regarding the type of legislation they need, even before their election.

Missouri: The secretary of the Association is likewise secretary of the Committee of Health and Public Instruction. He keeps informed concerning all details that touch the medical profession or public health. When necessary, he sends information concerning such bills to each of the component societies in the State Association (100 county societies out of 115 counties) giving the title and number of the bill, and what it is about. The physicians then act individually, as well as through the county societies. They get the names of the family physicians of each member of the Legislature. The leading members of the profession then get together with the leading members of the Legislature or with the Governor. Special influence is brought to bear upon the committee before a bill is given a public hearing. This, of course, requires time, numerous visits to the Capitol, frequent consultations with local physicians and friendly politicians. It is not considered wise to have a paid lobbyist. There is evidently an active and influential medical association in this State.

Montana: "The handling of legislative problems is easy if done systematically. Medical men best acquainted with important members of the Legislature talk over the desired measures and educate them on the subject." Here again no details are given. The plan sounds far simpler than it must really be.

New York: The State Medical Society has a legislative committee which for many years has been very efficient. It does not limit itself to attending hearings, but acts by personal interviews with the legislators. The New York County Medical Society also has a legislative committee, acting in unison with the State Society. For several years, the President of the State Society has taken an active hand in the legislative work. New York has adopted the principle of personal interviews and influence with the Legislature. They also ascertain who is the family or personal physician of each Legislator.

North Carolina: The committee, however, selects one doctor in each county who can be called upon to confer with, write or wire his representative or senator in the General Assembly. There are 100 counties, and the Association has been able to turn in a telegram to the senators and representatives in the General Assembly from more than 75 per cent. of these counties on a given morning. This has been of distinct influence. The plan, which corresponds closely to that referred to above of the Farmers' Association in Ontario, has many advantages.

Ohio: A wide-awake State Medical Society, an enterprising medical journal, coöperation of the various welfare and health agencies, have accomplished a great deal in this State. The various members of the Society at home in conference with their Legislators have accomplished much. There is a representative from each county medical society, and these representatives get together and discuss pending legislation. The results are good.

Pennsylvania: The President of the Society has a desk in the Department of Public Health at the State House. He is in harmony with this department. He is closely affiliated with the medical members of the House and Senate, and attends committee meetings, not as a lobbyist, but simply as an advisor. He lets it be understood that he represents 11,500 physicians in Pennsylvania. The results depend largely upon the personality of the president of the society. Pennsylvania is to be congratulated in having as the president of its State Medical Society a man who can devote so much time and who is able to exert so much influence as is apparently the case here.

South Carolina: The President of the State Medical Society calls a meeting of one or more influential physicians from each county in the State during the early days of the Legislature. These men go immediately to their representatives and tell them what legislation is desired and what is desirable. There is no expense attached to this plan.

Tennessee: When the Association wishes the enactment of any law in which they are interested, they appoint a committee which will give necessary time and energy to complete the matter. My correspondent is opposed to the medical profession interfering in legislation, as the responsibility does not belong to them. The responsibility should be put on the legislators.

The medical profession should see to it that the legislators are informed regarding what is good or bad legislation, and then leave the rest to the law-makers. Here, again, is outlined a plan that sounds simple enough but is not easy to carry out.

Texas: There is a legislative committee, consisting of the secretary, president, and three others. The secretary of the Association is secretary of this committee or council. He keeps the Council informed, and active in regard to legislative matters, and on him depends the success of this plan. The Society employs a man who remains constantly with the Legislature and keeps the secretary thoroughly informed as to the legislative situation, as it pertains to public health and medical profession. Telegrams, letters, and other methods of appeal are used, all having been carefully prepared in advance. Educational propaganda are carefully conducted with the various county societies and their legislative representatives. It is necessary to impress legislators with the fact that the effort being made is organized, and that a record is kept of the proceedings. Those who expect to remain in politics have a wonderful respect for organization.

Washington: There is a legislative committee, but it has been hampered in its work by the lack of a constructive program. They have come to the following conclusions:

1. The best time to interview a legislator is prior to his election.
2. A constructive program must be adopted and must be patiently followed from year to year.
3. This program must be for the best interests of the public.
4. The legislative committee should have complete freedom of action and individual action should be discouraged.

West Virginia: As mentioned above, there is a Committee on Public Policy and Legislation which in my correspondent's opinion has been a failure. Things are put off until there is dire need of action, and then it is too late to do anything. A legislative committee should go to work on the legislators before their election, if possible, by personal interviews. It is important to know the family physician of every legislator.

Here then is the evidence which, as every one will admit, goes to show clearly that the medical profession in this country, as far as the individual states are concerned, and indeed, in my opinion, as far as the country as a whole is concerned, is not the power for good that it should be. Can anything be done to improve this state of affairs? This question I would strongly answer in the affirmative and would make the following suggestions:

1. Education of the public as to its needs in health matters and legislation therefor. This should be done by articles of local interest whenever possible, printed in *newspaper English* in the daily and weekly lay press. Providing such articles contain news and are of local interest every newspaper will be glad to print them and will recognize their importance and value.

2. Education of the legislators. This is a difficult task. Find out the family physician of every legislator and instruct such physicians as to what is needed and obtain their coöperation and promise to interview the legislators in question personally in regard to important subjects. Find out the views of each legislator prior to his election and make such views, favorable or unfavorable, known to the physicians and the electors of his district.

3. Education of the medical profession. In the medical press and by personal letters and at medical meetings impress upon every doctor that it is part of his duties and part of his responsibility to the public to educate his patients and the families under his care concerning public health matters and preventive medicine.

4. Every State Medical Society might well employ a capable man at full or part time to assist in the details necessary to carry on the above campaign. He should also prepare the means and methods so that at short notice a given legislator, or group of legislators, can be deluged with letters, telegrams, and personal interviews urging his action for or against certain measures. The average legislator will not be greatly influenced by a legislative committee representing what is to him a somewhat vague and intangible thing such as a state medical society, particularly when he hears from such a committee at a time when his mind is usually already made up as to which way he intends to vote. He will be influenced, however, by appeals from men, constituents of his, whom he knows personally, from his own district, and who he likewise knows have large influence among the voters of his district. Such influence will be all the greater if it is brought to bear

at any early stage when his opinion is still in the formative state.

These are, of course, merely suggestions, the details of which must depend upon local conditions. I believe, however, that by carrying them out in whole or in part the medical profession will be a greater power for public good than it now is.

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TRANSFUSION IN OBSTETRICS. BLOOD MATCHING AS A ROUTINE ON PREGNANT PATIENTS.

By R. S. Titus, M.D., Boston.

The trend in obstetrics, as in all other branches of medicine and surgery, is toward prevention. We examine routinely thousands of specimens of urine for the occasional one containing albumen; we take many routine blood pressures, watching for the important rise; we do careful physical examination to rule out the infrequent patient unfit to have babies; we examine many pelves to find the unusual one which contains some pelvic obstruction to safe delivery; we do many Wassermanns for the one that proves positive—all this to find the occasional patient who is in one sense or another obstetrically abnormal. That very few abnormal patients are so found is no argument against trying to find them. All this routine is essential if obstetrical disasters are to be avoided. The ideal of obstetrics is not reached until we have done all that can be done to safeguard our patients against any and all disasters.

The accidental bleeding cases are the ones which by no examination can we anticipate. Detached placentas will occur, placenta praevias give warning only when they bleed, postpartum hemorrhages will come when least expected. For all loss of blood there is nothing like replacing blood, and severe shock is best treated by blood transfusion. Time spent in getting ready for safe transfusion on hemorrhage or shock patients is time lost if any time so spent could be saved. The technic of blood transfusion has been so perfected that it is known to be unsafe to give blood to anyone unless the blood of the donor and the blood of the recipient have been matched and found compatible. Occasional instances of incompatibility have been observed in the matching of bloods of people in the same group. Everyone who is in group four is a potentially safe donor, but even though the person be in group four it is clinically unsafe to transfuse with that person's blood until his blood has been matched with the blood of the person to whom it is to be given; and all this takes a certain amount of time—time which may be very, very precious, and time which may be entirely saved. It is a perfectly simple matter to match the blood of the pregnant patient with her husband's or with some person's in group four, any time within the last month or six weeks of expected delivery. Matching blood means only a few minutes if one is prepared to do it, and if one has a safe donor at hand when the need of transfusion arises, much time otherwise spent in getting a donor can be saved.

For some time it has been my custom to match the bloods of my patients with the blood of their husband and with the blood of a group four person. This has been done within six or eight weeks of expected delivery. Telling the patients of the very extraordinary condition that so rarely occurs to warrant this procedure meets with their full approval. Strangely enough only one of the husbands whose blood I have matched with his wife's has been compatible; on the other hand, the group four person has been compatible with the pregnant patient's blood in every instance. One hears occasionally of patients who have died because of hemorrhage, when the time spent in getting ready for the transfusion was too long. If one of these patients can be saved by the simple routine procedure of blood matching the habit is well worth while. One such disaster is enough to warrant this routine on many, many patients. Such routine, of course, is not practicable in clinics taking care of patients at home. So far as hospital practice goes, all patients arriving who have had any hemorrhage and cases in which the possibility of hemorrhage is present should be matched in order to meet the emergency if it should arise. Among men doing obstetrics and obstetrics alone any procedure which tends to lessen the dangers of delivery for their patients certainly is worthy of consideration. It is upon this basis that blood matching as a routine is advocated.

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THE TRAINING OF RELIEF NURSES.

The Trustees of the State Infirmary at Tewksbury are to institute, after October 1, a one-year course for the training of "relief nurses." They have recognized the great need of the community, as well as of the hospitals, for the type of nurse who will, in a measure, take the place of the "experienced nurse" known to the community twenty-five years ago, but now, as a class, nearly extinct. In the course they offer, the age limits, by preference between 18 and 45; the education, that of the equivalent to the standard grammar school education; opens, to what should be a goodly number of women, an opportunity to secure such an amount of training as will enable them to give valuable service in the communities in which they reside.

The nursing situation throughout the state is extremely serious. The largest amount of suffering falls upon the middle class and upon country districts, since the very poor are provided for in the hospitals and the rich may be able to obtain nurses. The middle class, not proper subjects for pauperization and not desirous of receiving charity, are unable to pay the increased rates in the hospitals where the poor receive services free, and would be unable to compete with the rich in increased prices for trained service. The trustees in the Tewksbury experiment will depend largely upon the coöperation of the medical profession in the effort. If every physician who reads this Journal will recommend one or more women suitable for this work the experiment will be a success and other institutions may follow suit. The trustees before deciding upon this course talked the matter over with various associations of graduate nurses, most of whom endorsed the measure with the understanding that it would be made very clear that graduates from the one-year course were not full-trained nurses.

It may be advisable later to define what schools will be allowed by the Commonwealth to give courses for which certificates are to be granted, but it is to be hoped that the certificate from a school, recognized and proven as proper to give instruction, will be accepted for registration if it is ever deemed wise to make registration the necessary preliminary to practice.

It is the greatest desire of the trustees to supply to the community by this project not highly trained "almost physicians," nor nurses trained as in their regular course to be capable of the finest operating-room technic nor even the care of cases requiring the largest experience and most trained judgment, but rather to help to supply to the hospitals those who may relieve the more fully trained nurse from many of the minor and mechanical duties of her work and also to bring to the community those who may aid the trained nurse where two nurses may be required, or, in the event of a chronic long-standing or not extremely critical case, help supply those who have had sufficient training to be helpful and who have taken up the work because of their love of nursing.

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INFANT AND CHILD WELFARE WORK IN BOSTON.

The work carried on by the Baby Hygiene Association in Boston demonstrates the value of organized infant welfare supervision in reducing the mortality rate among infants and children of pre-school age. From one hundred and thirty-three deaths per thousand infants in Boston in 1910, the mortality rate has dropped to ninety-six per thousand at the present time; this reduction may be attributed in considerable part to the efforts of the clinics maintained by the Baby Hygiene Association. The Association was established in Boston in 1906, when, in spite of the fact that the milk supply was good and there were six hospitals ministering to the welfare of babies, the infant death rate was high because of the ignorance displayed by mothers in the feeding of their babies. A physician was engaged therefore to attend each health station and advise the mothers in regard to proper feeding. The work has now been extended to include the supervision of children from the time of birth until the school age is reached and the school physician assumes the responsibility. Formerly the custom has been to leave the children without any medical supervision as soon as they were old enough for adult diet. The lack of any organized effort to keep these children of pre-school age well resulted in deplorable negligence and ignorance in the maintenance of healthy conditions among the younger children. Since 1917, six clinics have been opened in Boston for the benefit of this group, with the gratifying result that they now have a registration of over nine hundred children, who present a striking contrast to the formerly uncared for group. The work of the clinics for babies is promoted by the appreciation expressed by the mothers to each other; similarly, the work of the clinics for older children is helped by the interest manifested by the children themselves.

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A PROFESSIONAL PROTEST.

In its issue for September (page 53) *Our Dumb Animals* has seen fit to republish an illustration from *Life* representing the well known views of that periodical with regard to the medical profession. While these views may be tolerable and even amusing in such a publication as *Life*, it seems hardly excusable that a magazine published by a society which has always professed and practised courtesy and high regard towards physicians should go out of its way to express so discourteous and unjust an attitude towards the profession.

After all, it probably matters little what anyone says or writes in detraction from medical science, since truth is great and is bound to prevail. Nevertheless, the publication of such witticisms at the expense of the medical profession may serve to mislead for a time the unthinking, retard and make difficult the progress and diffusion of medical knowledge advantageous to the community, and ultimately react to the disfavor of those who perpetrate them.

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MEDICAL NOTES.

APPOINTMENT OF DR. A. GOSSET.—Announcement has been made of the appointment of Dr. A. Gosset, professor of external pathology of the Paris medical faculty, to the chair of clinical surgery, to succeed Professor Quénu.

BUBONIC PLAGUE IN GALVESTON.—On September 9 the ninth death and twelfth case of bubonic plague was reported from Galveston, Texas.

THE WILSON LABORATORIES.—The name of the Hollister-Wilson Laboratories, which have been directed by the same policies and standards as those maintained by Wilson and Company, has been changed to the new name, "The Wilson Laboratories."

APPOINTMENT OF DR. ARTHUR H. MORSE.—Dr. Arthur H. Morse has been appointed professor of obstetrics and gynecology in Yale University School of Medicine, to succeed Dr. Joshua M. Slemons, who has resigned.

PROFESSORSHIP IN THE UNIVERSITY OF ALBERTA.—Dr. Ardrey W. Downs has been appointed to the chair of physiology in the University of Alberta. Dr. Downs was formerly assistant professor of physiology at McGill University.

APPOINTMENT OF DR. W. S. LAZARUS-BARLOW.—Announcement has been made of the appointment of Dr. W. S. Lazarus-Barlow to the University chair of experimental pathology at Middlesex Hospital Medical School, London.

RETURN OF LIEUT.-COL. HARRY PLOTZ, M.C.—After spending several months in investigating the spread of typhus fever in Poland, Southern Russia, and Eastern Europe, Lieutenant-Colonel Harry Plotz, M.C., has returned to this country.

THE UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE.—Plans have been made for the erection of a pathological laboratory building by the University of Tennessee College of Medicine. The building will be located near the Memphis General Hospital, and will cost approximately $75,000. The medical school will have entire control of the teaching facilities in the hospital for a period of twenty years, and will nominate the medical, surgical, and laboratory staffs of the hospital.

APPOINTMENT OF DR. DAVID MARINE.—Announcement has been made of the appointment of Dr. David Marine, associate professor of experimental medicine in Western Reserve University, Cleveland, as director of laboratories in the Montefiore Home and Hospital, New York City.

APPOINTMENT OF DR. NICHOLAS KOPELOFF.—Dr. Nicholas Kopeloff has been appointed associate in bacteriology at the Psychiatric Institute of the New York State Hospitals. Dr. Kopeloff was formerly bacteriologist of the Louisiana Sugar Experiment.

SANITARY WORK AT PORT ARTHUR, TEXAS.—The inspection and laboratory work for the city of Port Arthur, Texas, is now under the direction of Mr. R. G. Upton, who formerly was assistant sanitary engineer of the Texas State Board of Health.

ROYAL COLLEGE OF PHYSICIANS OF LONDON APPOINTMENTS.—The following lecturers have been appointed by the Royal College of Physicians of London: Dr. F. Parkes Weber, Mitchell lecturer, 1921; Dr. G. Graham, Goulstonian lecturer, 1921; Dr. T. Lewis, Oliver Sharpey lecturer, 1921; Dr. A. Whitfield, Lumleian lecturer, 1921; Dr. R. O. Moon, FitzPatrick lecturer, 1921; and Dr. G. M. Holmes, Croonian lecturer, 1922.

SECOND INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY.—The Second International Congress of Comparative Pathology, with Professor Perroncito as president, will be held in Rome in the spring of 1921.

THE INTERNATIONAL SURGICAL SOCIETY.—Announcement has been made that the next international congress of the International Surgical Society will be held at London in July, 1923, under the presidency of Professor Macewen of Glasgow.

AWARD OF HONORARY FELLOWSHIPS. — The Royal College of Surgeons of England has conferred recently honorary fellowships on Professor A. Depage, of Brussels; M. Pierre Duval, of Paris; Professor John M. T. Finney, of The Johns Hopkins University, Baltimore, and Dr. Charles H. Mayo, of Rochester, Minnesota.

AWARD OF DEGREE TO DR. J. C. MCWALTER.—The degree of Doctor of Literature has been conferred by the University of Ottawa on Dr. J. C. McWalter, high sheriff of Dublin, and president of the Dublin Branch of the British Medical Association.

ACADEMY OF MEDICINE OF BUENOS AIRES.—The first centenary of the Academy of Medicine of Buenos Aires will be celebrated in 1922 with a contest on medicine and allied sciences. For the three best papers presented the following prizes will be presented: the first of 5,000 pesos and a gold medal; the second; 3,000 pesos and a silver medal; and the third, 1,000 pesos and a diploma.

DONATION TO THE UNIVERSITY OF HEIDELBERG.—There is to be founded at the University of Heidelberg, to be affiliated with the Institute for Hygiene and under the direction of Professor Kessel, an institute for research on albumins. The sum of 500,000 marks has been donated to the University for the purpose.

BOSTON AND MASSACHUSETTS.

APPOINTMENT OF MR. ARTHUR G. ROTCH.—Mr. Arthur G. Rotch of Boston has been appointed manager of the New England division of the American Red Cross, to succeed Mr. James Jackson. Mr. Rotch has been assistant manager of the division since December, 1917, and was acting manager during Mr. Jackson's absence in Europe early this year. During the war he devoted the major part of his attention to the communication service work of the Red Cross. Mr. Rotch was graduated from Harvard College in the class of 1903. Before joining the Red Cross he was a landscape architect. He is a director and member of the executive committee of the Infant Hospital of Boston and vice-president of the Massachusetts Central Health Council.

AWARD OF HONORARY COMMISSION TO DR. ALFRED WORCESTER.—Dr. Alfred Worcester, of Waltham, has received recently from the King of Belgium a commission as officer of the Order of Leopold II, for his service in Switzerland as a Red Cross officer in caring for the Belgian children.

Bequest to the Addison Gilbert Hospital.—Among the bequests in the will of the late Sarah P. Ayer of Gloucester is a gift of four thousand dollars to the Addison Gilbert Hospital of Gloucester.

Appointment of Miss Sally Johnson.—Miss Sally Johnson, a graduate of the Massachusetts General Hospital in 1910, has been appointed head of the training school for nurses at the hospital, to succeed Miss Sara E. Parsons, who is planning to leave Boston to make a nursing survey in Missouri and Oklahoma. Miss Parsons has been superintendent of the school since 1910; during that time an affiliation with Simmons College for a five-year course leading to a B. S. degree and a diploma of nursing has been established. Miss Johnson was formerly instructor and assistant superintendent of nurses at the Peter Bent Brigham Hospital, and for the last three years has been superintendent of the training school in Albany, New York.

NEW ENGLAND NOTE.

French Orphanage Fund.—The New England Branch of the French Orphanage Fund has announced that the total contributions now amount to $617,511.43.

Obituary.

JOHN MORGAN, M.D.

The following reminiscence, written by Mr. Philip Hale, and published recently in the *Boston Herald*, is a worthy tribute to the memory of Dr. John Morgan, and deserves republication in full:

Many in this city remember gratefully Dr. John Morgan, the oculist, who died last week. He was not only singularly skilful in his profession, he was a beneficent man who thought more of a patient's eyes than of his pocketbook. It was not easy to obtain from him a bill for the service rendered, whether it was an operation for cataract or merely a prescription for spectacles; and when a bill was finally extracted from him, it was always modest, sometimes ridiculously so. It was his habit to inquire, and not merely from curiosity, into the profession, trade, business of a patient; if he thought the patient was in humble circumstances, the charge, if any was made, was trifling. Brusque in manner, he was the personification of kindness. In the report of his death it was stated that "one of his whims was to pick out newsboys and street urchins who had eye ailments and give them free treatment." This was not a passing "whim." During his years in Boston, he gave many professional men, who were constantly using their eyes, sometimes abusing them, free treatment, in spite of their protest.

When we first visited him, before he began his examination, he asked us if we were sure that the earth was not flat. We quoted the good old description given years ago in the school geographies. He then went on to show why the earth was flat; he talked amusingly, eloquently. Learning that we were in a newspaper office, he thundered against inaccuracy in statement and in phraseology. "You fellows write about a 'madhouse.' Now, a house cannot be mad. You should say a house for madmen." At the end of twenty minutes or half an hour, he began his examination. Meanwhile his waiting room was crowded with impatient patients.

He was so independent, so radical in his views that he disconcerted the great majority of his fellow-oculists. They regarded his moderate charges, his unbounded philanthropy as unprofessional. Harsh and unjust things were said about him by some, who, admitting his skill, thought he was a dangerous person. One of these men, however, distrusting his own ability, brought one of his relatives suffering from cataract to Dr. Morgan, and asked for secrecy. This amused Dr. Morgan hugely. When he left Boston for New York, many mourned the departure of the oculist, the skilful practitioner, the rugged, brilliant man, the staunch friend.

Miscellany.

EXAMINATION FOR ARMY MEDICAL AND DENTAL CORPS.

The Secretary of War has directed that another examination be held October 25 to 31, 1920, to determine eligibility for appointment of applicants for the Medical and Dental Corps of the Regular Army under the provisions of Section 24 of the National Defense Act amended by the Act of June 4, 1920.

Persons of the following classes who served as officers of the United States Army at some time between April 6, 1917, and June 4, 1920, are eligible to take this second examination:

a. Those who for any good reason did not apply and were not authorized to take the July examinations.

b. Those who were authorized to take the July examinations but who for some good reason were unable to appear before the examining boards.

c. Those who were authorized to take the July examinations and who appeared before the examining boards but who for some good reason of their own volition or through illness or accident failed to complete the examination.

d. Those examined during the July examination who were found disqualified on account of physical defects which have been removed by operation or which do not exist at the time of the October 25 examination.

The examination will not be competitive. The number of vacancies in the Medical Corps is sufficient to provide for any reasonable number of applicants who may qualify for appointment. The reference in War Department announcements limiting appointments to be made to 200 does not apply to the Medical Department.

As in the past examinations under the provisions of the Act referred to above, the military record and general efficiency of the officer will be determining factors for appointment. Candidates must be 58 years of age or under and meet the physical requirements fixed by the War Department.

Age in determining eligibility for grade based on that of July 1, 1920. Rank to date from July 1, 1920.

It has been the policy of the boards reviewing the reports of examination and records of applicants not to recommend the appointment of any individual in a grade higher than that which he held at any time in the service, unless the circumstances are exceptional.

Applicants for appointment will be submitted to the Adjutant General of the Army on Form No. 739, A. G. O., and for persons in the military service will be submitted through military channels. In addition to stating the arm of service desired each applicant will state the grade for which he applies. Any applications received later than October 9, 1920, cannot receive consideration. All applications will be accompanied by a letter of transmittal addressed to The Adjutant General of the Army, setting forth the circumstances which bring the application within the classes above enumerated.

The scope of the examination in the Medical Department will be as follows:

Medical Corps.

M. D. degree exempts applicant from the educational examination. Professional examination is written and comprises the following subjects: Medicine; Surgery; Sanitation; Administration.

Additional Examination. Candidates may select from the professional subjects in which they have specialized during the term of service, one or more subjects for additional examination; such examination is optional with the candidate.

Dental Corps.

Operative Dentistry; Prosthetic Dentistry; Oral Surgery; Administration.

Additional Examination. Candidates may select from the professional subjects in which they have specialized during their term of service one or more subjects for additional examination; such examination is optional with the candidate.

Applications submitted through military channels will be expedited by all concerned.

Applicants of class *d*, paragraph 2, should have their physical defects removed without delay as their physical fitness for appointment will be definitely and finally determined without further delay when they appear for examination.

Blank forms for making application, Form No. 739, A. G. O., may be obtained from The Adjutant General of the Army or at any military post or station.

ANNUAL ETHER DAY INVITATION.

The Trustees of the Massachusetts General Hospital invite all members of the medical profession to attend the Ether Day exercises at the Massachusetts General Hospital on Monday, October 18, 1920, at four o'clock. Dr. Alonzo E. Taylor of the University of Pennsylvania will give the annual Ether Day address.

SOCIETY NOTICES.

Suffolk District Medical Society.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 The Fenway, Thursday, November 4, 1920, at four o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least one week before the examination.

Richard H. Miller, *Secretary*.

402 Marlborough Street, Boston.

RECENT DEATHS.

Dr. Frederick H. Gerrish died at Portland, Maine. on September 9, at the age of sixty-five. Dr. Gerrish was a graduate of the Maine Medical School, and contributed several text-books to medical literature.

Dr. Joseph Homer Gelineau of Easthampton Mass., died Aug. 16, 1920, at Northampton, as a result of a broken neck received in an automobile accident. He was driving a car for the first time, his chauffeur being away, and came into collision with a telephone pole. He was a graduate of the Baltimore University School of Medicine in 1906, was thirty-eight years old and is survived by his widow and one son. During the great war, Dr. Gelineau was in the Army Medical Corps.

Dr. Charles Holt Thomas, died at his home in Cambridge, September 4, 1920, aged 70 years. He was born at New Bedford, August 26, 1850, the son of James Brown and Araminta Taber Thomas. After attending Gleason's Academy in New Bedford, he entered the Medical School of Boston University where he was graduated in 1888, and settled in practice in Cambridge.

At one time Dr. Thomas was visiting physician at the Massachuetts Homeopathic Hospital, Associate Professor in Clinical Medicine at the Boston University Medical School, chairman of the Cambridge Board of Health from 1907 to 1909, and director of the Reliance Coöperative Bank. He was a member of the Massachusetts Medical Society, Boston Homeopathic Medical Society and Massachusetts Homeopathic Medical Society. Dr. Thomas was a thirty-second degree Mason and also belonged to the Odd Fellows.

Dr. Thomas is survived by his widow, who was Julia Leona Winsor of Duxbury, whom he married October 17, 1877, and by one son.